

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 5991 (1971): Ballast Rakes [PGD 6: Earth, Metal And Wood Working Hand Tools]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



IS : 5991 - 1971

Indian Standard
SPECIFICATION FOR
BALLAST RAKES

UDC 625.141.08:621.865.1



© Copyright 1971

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 1

Price Rs 2.50

Gr 2

May 1971

Indian Standard

SPECIFICATION FOR BALLAST RAKES

Hand Tools Sectional Committee, EDC 12

Chairman

SHRI K. N. P. RAO

Representing

The Tata Iron and Steel Co Ltd, Jamshedpur

Members

SHRI K. R. VENKATACHALAM (<i>Alternate</i> to Shri K. N. P. Rao)	
SHRI SHIR BANERJEE	Metalcraft (India) Ltd, Calcutta
SHRI H. N. GANGULY (<i>Alternate</i>)	
DIRECTOR OF FLEET MAINTENANCE	Indian Navy
SHRI L. R. GOSAIN	Railway Board (Ministry of Railways)
LT-COL J. C. JOSHI	Department of Defence Production, Ministry of Defence (DGI)
SHRI M. R. S. SOORMA (<i>Alternate</i>)	
SHRI S. K. KEMPAIAH	The Mysore Implements Factory, Hassan
SHRI N. S. VENKATESHA (<i>Alternate</i>)	
SHRI G. KUPPUSWAMY	Directorate General of Supplies & Disposals
SHRI S. N. VOHRA (<i>Alternate</i>)	
SHRI D. MAJUMDAR	Development Commissioner, Small Scale Industries (Ministry of Industrial Development, Internal Trade & Company Affairs)
SHRI G. B. JAKHETIA (<i>Alternate</i>)	
SHRI S. D. MAJUMDAR	National Test House, Calcutta
SHRI T. H. NIRMAL	Ministry of Food, Agriculture, Community Development & Co-operation
SHRI GOBINDO PRASAD PAUL	Gobindo Sheet Metal Works & Foundry, Calcutta
SHRI E. K. RAMAKRISHNAN	Kumar Industries, Parli (S. Malabar)
SHRI K. SANKARANARAYANAN	Directorate General of Technical Development
SHRI SATISH CHANDRA (<i>Alternate</i>)	
SHRI R. P. SOOD	Director of Industries, Government of Haryana
SHRI M. SRINIVASAN	Railway Board (Ministry of Railways)
SHRI R. T. S. RANGIAH (<i>Alternate</i>)	
SHRI R. M. TALATI	Usha Forgings & Stampings Limited, New Delhi
SHRI R. M. MOUDGILL (<i>Alternate</i>)	

(Continued on page 2)

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 1

IS : 5991 - 1971

(Continued from page 1)

Members

SHRI T. C. THADANI
SHRI M. V. PATANKAR,
Director (Mech Engg)

Representing

Engineer-in-Chief's Branch, Army Headquarters
Director General, ISI (*Ex-officio Member*)

Secretary

SHRI B. L. RAINA
Assistant Director (Mech Engg), ISI

Metal Workers' Tools Subcommittee, EDC 12 : 2

Convener

SHRI S. K. KEMPAIAH

The Mysore Implements Factory, Hassan

Members

SHRI N. S. VENKATESHA (*Alternate to*
Shri S. K. Kempaiah)

SHRI S. C. BIEWAS
CHIEF MECHANICAL ENGINEER
SHRI S. P. CHOWHAN
SHRI A. K. GUHA
SHRI M. L. MEHROTRA

Mukund Iron & Steel Works Ltd, Bombay
Railway Board (Ministry of Railways)
Victor Tools Corporation, Jullundur
Directorate General of Supplies & Disposals
Department of Defence Production, Ministry of
Defence (DGI)
South India Metal Co, Shoranur
Presidency Edge Tools Co Ltd, Purulia

SHRI P. C. P. NAMBOODIRIPAD
SHRI J. P. SINGH DEO
SHRI B. P. SINGH DEO (*Alternate*)

Indian Standard

SPECIFICATION FOR BALLAST RAKES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 29 January 1971, after the draft finalized by the Hand Tools Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 This standard lays down the requirements for ballast rakes used by the railways for handling ballast on rail tracks.

0.3 While preparing this standard, assistance has been derived from the following:

IRS Specification Y3-61 Specification for IRS permanent way tools for broad, metre and narrow gauge tracks. Ministry of Railways, Government of India.

IRS Drg Y31 Ballast rake. Ministry of Railways, Government of India.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard lays down the requirements for ballast rakes.

2. MATERIAL

2.1 The ballast rakes shall be manufactured from a suitable steel, such as T50 or T55 of Schedule VI of IS : 1570-1961†, with a maximum sulphur and phosphorus content of 0.06 percent each.

*Rules for rounding off numerical values (*revised*).

†Schedules for wrought steels for general engineering purposes.

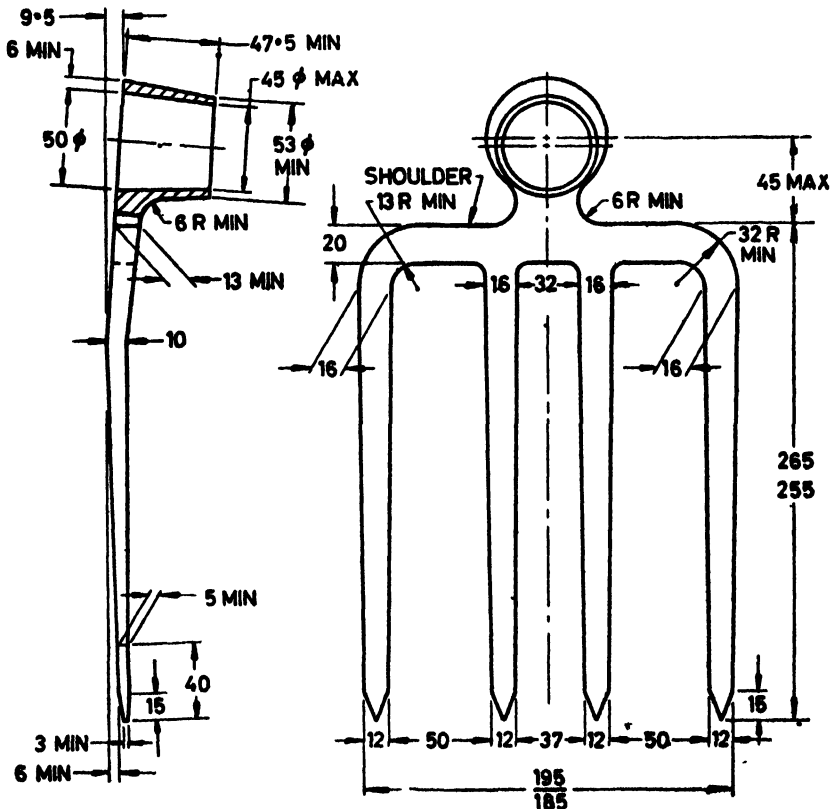
3. HARDNESS

3.1 The prongs shall be hardened and tempered to attain a hardness value within the range of 380 to 480 HV (see IS: 1501-1959*) when measured at any point not less than 50 mm from the shoulder.

4. DIMENSIONS

4.1 The main dimensions for ballast rakes shall be as given in Fig. 1.

4.1.1 The permissible tolerances on the essential dimensions shall be as indicated in Fig. 1. Tolerances on other dimensions shall be in accordance with general forging practice.



All dimensions in millimetres.

FIG. 1 DIMENSIONS FOR BALLAST RAKE

***Method for Vickers hardness test for steel.**

5. HANDLES

5.1 The handles shall conform to the requirements of those of 4 as specified in IS : 620-1965*.

6. MANUFACTURE

6.1 The ballast rakes shall be forged in one piece. The eye shall be well shaped and central.

7. WORKMANSHIP AND FINISH

7.1 Ballast rakes shall be well shaped, symmetrical and free from flaws, seams and other defects. All fins and flashes produced during forging shall be dressed to reasonably level surface.

8. PRESERVATION AND PACKING

8.1 The ballast rakes shall be painted, varnished or given any other suitable anti-corrosive treatment. The rakes shall be bundled and suitably secured as may be specified by the purchaser.

9. MARKING

9.1 The ballast rakes shall be clearly marked with the manufacturer's name or trade-mark.

9.1.1 The ballast rakes may also be marked with the ISI Certification Mark.

NOTE—The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

10. SAMPLING

10.1 Unless otherwise agreed to between the supplier and the purchaser, the sampling plan as given in Appendix A shall be followed.

11. TESTS

11.1 Prong Test — The prongs of ballast rakes shall be tested by bringing any two adjacent prongs together and the permanent set noted. At the end of this, the prongs shall show no sign of permanent set or damage.

*General requirements for wooden tool handles.

APPENDIX A

(Clause 10.1)

SCALE OF SAMPLING AND CRITERIA FOR CONFORMITY

A-1. SCALE OF SAMPLING

A-1.1 Lot — In any consignment all the ballast rakes manufactured under essentially similar conditions shall constitute a lot.

A-1.2 For ascertaining the conformity of the lot to the requirements of this specification, tests shall be carried out for each lot separately. The number of ballast rakes to be selected for this purpose shall be in accordance with col 1 and 2 of Table 1.

TABLE 1 SAMPLE SIZE AND CRITERIA FOR CONFORMITY

Lot Size (<i>N</i>)	FOR HARDNESS, DIMENSIONS, HANDLES, MANUFACTURE, WORKMANSHIP AND FINISH		PRONG TEST, SUB-SAMPLE SIZE
	Sample Size (<i>n</i>)	Permissible No. of Defectives	
(1)	(2)	(3)	(4)
Up to 25	3	0	2
26 to 50	5	0	2
51 „ 100	8	0	3
101 „ 150	13	1	4
151 „ 300	20	1	5
301 and above	32	2	8

A-1.3 The ballast rakes shall be selected at random and to ensure the randomness of selection random number tables shall be used (*see* IS : 4905-1968*). If the tables are not available, the following procedure is recommended for use:

Starting from any ballast rake in a lot, count them in one order as 1, 2, 3,, up to *r* and so on where *r* is the integral part of N/n (*N* being the lot size and *n* the sample size indicated in col 2 of Table 1). Every *r*th ballast rake thus counted shall be selected to constitute the sample.

*Methods for random sampling.

A-2. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

A-2.1 All the ballast rakes selected according to **A-1.3** shall be examined for hardness, dimensions, handles, manufacture and workmanship and finish as specified in **3, 4, 5, 6** and **7** respectively. Any ballast rake failing to meet the requirements of any one or more of the characteristics shall be considered defective.

A-2.1.1 If the number of defective ballast rakes in the sample is less than or equal to the corresponding permissible number of defectives given in col 3 of Table 1, the lot shall be declared conforming to the requirements of characteristics mentioned in **A-2.1**.

A-2.2 From the lots found satisfactory in accordance with **A-2.1.1** a sub-sample of the size indicated in col 4 of Table 1 shall be selected and subjected to prong test. The ballast rake may be selected from those already tested in **A-2.1**.

A-2.2.1 If all the ballast rakes subjected to prong test satisfy the necessary requirements, the lot shall be declared as conforming to the requirements of this standard.

INDIAN STANDARDS

ON

Metal Workers' Tools

IS :								Rs
402-1964	Chisels (<i>revised</i>)	...	...	...	...	...	...	4.00
413-1965	Punches round (<i>revised</i>)	...	...	...	...	...	...	1.50
510-1964	Blacksmith's anvils (cast steel) (<i>revised</i>)	...	...	...	...	...	...	2.50
552-1965	Smith bits (<i>revised</i>)	...	...	...	...	...	...	2.00
841-1968	Hand hammers (<i>first revision</i>)	...	...	...	...	...	...	6.50
842-1968	Smith's swages (<i>first revision</i>)	...	...	...	...	...	...	5.00
843-1968	Smith's tongs (<i>first revision</i>)	...	...	...	...	...	...	5.00
844-1962	Screw drivers	...	...	...	...	...	...	5.50
845-1961	Swage blocks and stands	...	...	...	...	...	...	2.00
846-1968	Smith's flatters (<i>first revision</i>)	...	...	...	...	...	...	3.50
847-1968	Smith's fullers (<i>first revision</i>)	...	...	...	...	...	...	4.00
2586-1964	Bench vices (machinists vices)	...	...	...	...	...	...	4.00
2587-1964	Pipe vices (open side type and fixed sides type)	...	...	...	...	...	...	3.50
2588-1964	Blacksmiths' vices	...	...	...	...	...	...	3.50
2615-1964	General requirements for pliers, pincers and nippers	...	...	...	...	...	...	7.00
3529-1966	Eyelet pliers	...	...	...	...	...	...	1.00
3552-1966	Flat nose pliers	...	...	...	...	...	...	1.50
3568-1966	Round nose pliers	...	...	...	...	...	...	1.50
3569-1966	Burner pliers	...	...	...	...	...	...	1.00
3650-1966	Combination side cutting pliers	...	...	...	...	...	...	1.00
4378-1967	Nippers	...	...	...	...	...	...	2.50
4481-1968	Duckbill pliers	...	...	...	...	...	...	2.00
4806-1968	Heat coil pliers	...	...	...	...	...	...	2.00
4915-1968	Welders' chipping hammer	...	...	...	...	...	...	2.00
5006-1968	Battery terminal pliers	...	...	...	...	...	...	1.50
5066-1969	Glass pliers	...	...	...	...	...	...	2.00
5067-1969	Fencing pliers	...	...	...	...	...	...	2.00
5068-1969	Grab hook	...	...	...	...	...	...	2.00
5087-1969	Wire stripping pliers	...	...	...	...	...	...	2.50
5169-1969	Hacksaw frames	...	...	...	...	...	...	5.00
5200-1969	Bolt clippers	...	...	...	...	...	...	3.50
5657-1970	Jim crows	...	...	...	...	...	...	2.50
5658-1970	Snipe nose pliers	...	...	...	...	...	...	2.00
5663-1970	Brick and mason's chisels	...	...	...	...	...	...	2.50
5684-1970	Pipe vices (chain type)	...	...	...	...	...	...	3.50
5697-1970	Ripping chisels	...	...	...	...	...	...	2.50

PUBLICATIONS OF INDIAN STANDARDS INSTITUTION

INDIAN STANDARDS

Over 6000 Indian Standards, broadly classified under the following main heads, have been issued so far:

Agriculture & Food
Chemical
Civil Engineering
Consumer Products

Electrotechnical
Mechanical Engineering
Structural & Metals
Textile

Of these, the standards belonging to the Mechanical Engineering Group fall under the following categories:

Basic Engineering Standards
 Abrasives
 Bearings
 Bicycle Components
 Chemical Engineering
 Engineering Metrology
 Gas Cylinders and Fittings
 Gaskets and Packings
 Gears
 Hand Tools
 IC Engines and Automotive Vehicles
 Instruments (Drawing, Optical and Surveying)
 Machine Tools and Small Tools

Marine Engineering and Ship-building
 Material Handling, Lifting Gear
 Mining
 Pumps
 Refrigeration and Air-Conditioning
 Sewing Machines
 Steam Tables
 Threaded Fasteners and Rivets
 Transmission Devices, Pulleys and Belts
 Weights and Measures
 Wire Ropes and Wire Products
 Unclassified

OTHER PUBLICATIONS

ISI Bulletin (Published Every Month)						Rs
Single Copy	...	...	...	...	...	3-00
Annual Subscription	...	...	...	...	...	25-00
Annual Reports (from 1948-49 Onwards )	...	...	...	...	...	2-00 to 5-00 each

Handbook of ISI Publications, 1970 (Pages viii + 629, Price Rs 12-00)
 incorporating annotations on all Indian Standards, and also listing ISO
 Recommendations and Publications of IEC

Available from

INDIAN STANDARDS INSTITUTION

Headquarters

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 1

Telephone 27 01 31 (20 lines)

Telegrams Manaksanstha

Branch Offices

Telegrams Manaksanstha

Syndicate Bank Building, Gandhinagar
 534 Sardar Vallabhbhai Patel Road
 5 Chowringhee Approach
 5-9-201/2 Chirag Ali Lane
 117/418 B Sarvodaya Nagar
 54 General Patters Road

Bangalore 9	Telephone	2 76 49
Bombay 7	"	35 69 44
Calcutta 13	"	23-08 02
Hyderabad 1	"	5 34 35
Kanpur 5	"	82 72
Madras 2	"	8 72 78

Printed at Neelkamal Printers, Delhi 6, India

AMENDMENT NO. 1 NOVEMBER 1978
TO
IS : 5991-1971 SPECIFICATION FOR
BALLAST RAKES

Addendum

(Page 5, clause 11.1) — Add the following new matter after 11.1:

'11.2 Load Test — The ballast rakes shall be subjected to load test as shown in Fig. 2. The load test shall be carried with 50-kg load and the ballast rakes shall not show any permanent set after removing the load.'

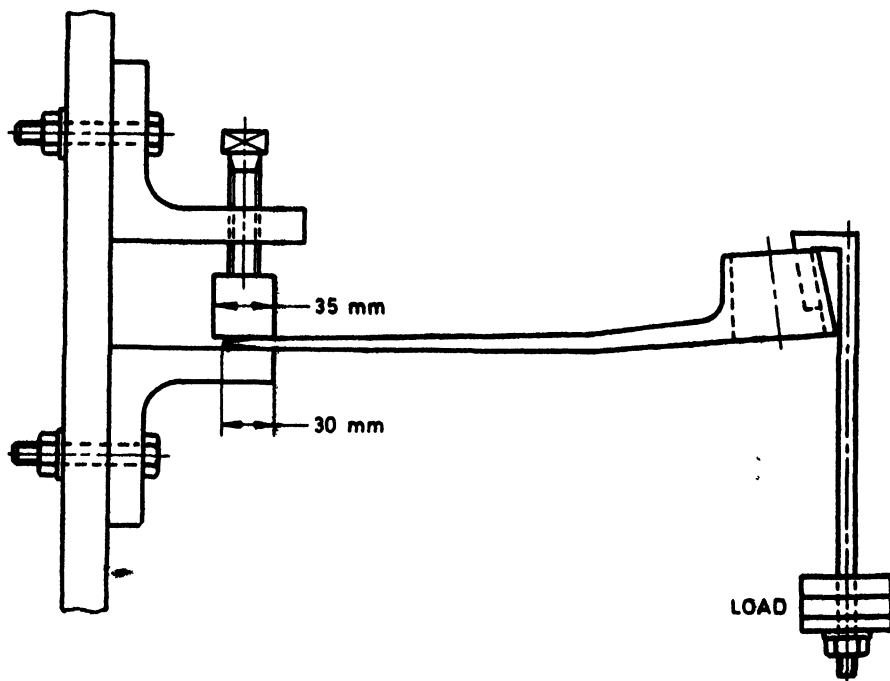


FIG. 2 LOAD TEST OF BALLAST RAKE

(EDC 12)